WHAT I CLAIM AS MY INVENTION:

1. A rotary pump for fluids comprising:

a shaft to rotate about a longitudinal axis;

a rotor centrally secured to the shaft, the rotor having a body with a cylindrical surface extending between spaced ends;

a rotor disk secured to the rotor at each end and secured at its center to the shaft;

a housing encasing the shaft, rotor and rotor disks within an internal cavity, the shaft extending outside of the housing, the housing having interior end walls adjacent to the rotor disks and an interior side wall, with fluid inlet and fluid outlet ports at spaced locations in the side wall, a first portion of the interior side wall of the housing being cylindrical and curved with constant radius over an angle of about approximately 180°, this portion being spaced a constant distance from confronting portions of the cylindrical surface of the rotor, and a second portion of the interior side wall of the housing extending between the extremities of the first portion of the interior side wall and being of curvature of greater radius than that of the first portion;

the cylindrical surface of the rotor being proximal to the interior side wall of the housing at a point between the inlet and outlet ports about midway on the second portion, the inlet and outlet ports being located in this second portion of the interior side wall of the housing;

a plurality of equally spaced, similarly contoured pockets in the rotor, extending longitudinally across its cylindrical surface;

a similar paddle, secured to the rotor in each pocket, to pivot about a point at a rearward side of the paddle, for movement between an extended position

with a portion of the paddle extending outwardly beyond the cylindrical surface of the rotor, and a retracted position wherein the paddle is seated entirely within its corresponding pocket, the paddles extending longitudinally the length of the pockets and being spaced from adjacent paddles so that there is always at least one paddle positioned between the inlet port and the outlet port, each paddle and pocket configured so that when the paddle is in retracted position it provides an exterior surface which conforms to the cylindrical surface of the rotor and closes the pocket, and between that position and extended position, it bears against the interior side wall of the housing while still closing the pocket;

means to bias each paddle towards extended position, but to allow the paddle to move towards retracted position under urging of the interior side wall during operation of the device;

the rotor disks, housing and paddles constructed so that, during operation of the device, fluid entering the housing through the inlet port is carried by the rotor, in compartments formed between adjacent paddles, the rotor cylindrical surface between those paddles, the rotor disks and corresponding portions of the side wall of the housing, until the adjacent vanes encompass the outlet port where the fluid is expelled from the housing.

2. A pump according to claim 1, wherein each paddle has outwardly extending shoulders at opposite ends, the shoulders extending into corresponding pockets formed at appropriate locations in the rotor disks, the pockets in the rotor disks formed so as to restrict further outward movement of the corresponding shoulder of the paddle with respect to the cylindrical surface of the rotor when the paddle is at its extended position, and to restrict further inward movement of that shoulder when the paddle is at its retracted position.

3. A pump according to claim 1, wherein a forward surface of each paddle is of arcuate shape in lateral cross section, with the pivot point of the paddle being the center of curvature of the arc, and a corresponding edge of the corresponding pocket is curved to mate with that forward surface.

4. A pump according to claim 2, wherein an external, forward surface of each paddle is of arcuate shape in lateral cross section, with pivot point of the paddle being the center of curvature of the arc, and a corresponding edge of the corresponding pocket is curved to mate with that forward surface.

5. A pump according to claim 1 in combination with a drive means to rotate the shaft.

6. A pump according to claim 1, wherein the rotor disks are of integral construction with the rotor.

7. A pump according to claim 2, wherein the rotor disks are of integral construction with the rotor.

8. A pump according to claim 1, wherein the bias means for the paddles are leaf springs seated in the pockets.

9. A pump according to claim 1, wherein channels are provided in lower portions of each pocket to provide fluid communication with an adjacent pocket so as to enable fluid to be forced from a pocket as its corresponding paddle moves towards retracted position, during operation of the device, to that adjacent pocket.

10. A pump according to claim 1, wherein the rotor disks are of a diametrical size conforming to that of the rotor.

11. A pump according to claim 1, wherein the rotor disks are of a diametrical size greater than that of the rotor.

12. A pump according to claim 2, wherein an outwardly extending guide is provided on each shoulder at a location near a forward surface of each paddle, the guides being located a similar distance from the pivot point of the paddles, the guides extending through slots in their corresponding rotor disks into races formed in the end walls of the housing to provide additional force on the paddles to move them to retracted position in the vicinity of the outlet port during operation of the pump.